

The schematic diagram illustrates a two-channel differential amplifier. It consists of two main stages, A and B, which are differential pairs. Each stage has a PMOS load and an NMOS tail. The output of stage A is taken differentially between nodes <1> and <2>. The output of stage B is also taken differentially between nodes <1> and <2>. The differential outputs are then converted to single-ended signals using a differential-to-single-ended converter, which is represented by a circle labeled 'N/U' connected to ground. The converter's output is taken from node <1> relative to ground.

Diagram illustrating the wiring connections for a 4-wire twisted pair cable (BN, BK, BU or GY, GN/YE) across two segments, A and B.

- Segment A:**
 - BN is connected to BK.
 - BU or GY is connected to GN/YE.
- Segment B:**
 - BN is connected to GN/YE.
 - BK is connected to BU or GY.

The diagram shows the physical layout of the cable with segments A and B, and the corresponding wiring connections at both ends.

Technical drawing of a cable assembly with two connectors, A and B. The drawing shows dimensions for the cable length (L), connector length (60.6 and 44), and cable diameter (8±1). It also indicates "TINNED ENDS" and "IN CASE OF E65XXXXXXXXX1X000, WITHOUT LED".

IN CASE OF E6XXXXXXXX1X000,
WITHOUT LED

CIRCUIT PRINTOUT /WHITE
(NOT FOR E65XXXXXX1X000)

ELECTRICAL - CURRENT : MAX. 5.0A
CONTACT RESISTANCE : ≤15 milliohms MAX.
INSULATION RESISTANCE : 100 Megaohms MIN.

PHYSICAL - OPERATING TEMPERATURE WITH :
NITRILE RUBBER (NBR) GASKET : -40°C TO +90°C
LIVE CONTACT DISTANCE :
FORM A - 18.00mm

ENVIRONMENTAL - IP65 SEALING PROTECTION(FIXING SCREW)

12	0/2	INTEGRATED GASKET	NBR	-
11	0/2	WASHER	NBR	-
10	0/2	SCREW M3x27	STEEL	ZINC
9	0/2	FLAT GASKET	NBR/SILICONE	-
8	0/2	PROFILE GASKET	NBR/SILICONE	-
7	0/2	SCREW M3x25	STEEL	ZINC
6	2	LABEL WHITE	ABS	-
5	0/2	PCB	-	-
4	2	INSERT DIN A	PA66+25%G V0	-
3	8	CONTACT DIN	BRASS	SILVER
2	-	MOULDING MATERIAL	PP	-
1	-	CABLE (SEE SHEET 3)	-	-
ITEM	QTY.	DESCRIPTION	MATERIAL	FINISH

Downloaded from Arrow.com.

ENGINEERING No. MATRIX

E 6 5 3 X X X X X X 1 X X X X

E - Packing without bag
W - Single Packing
Q - Quick Packing

Number of Wires
2 - 2 Poles
3 - 2 Poles + Ground
A - M12 STR , B - 90°

Cable type:
See Table

Head Colour:
G - Grey
N - Black
A - CSA-UL Black
B - CSA-UL Grey

Cable Lenght
in Meters (L):
A=1
B=1.5
C=2
D=2.5
E=3
F=3.5
G=4
H=4.5
L=5
M=5.5
N=6
P=6.5
Q=7
R=7.5
S=8
T=8.5
U=9
K=10

Cable Lenght
in cm Between
2 connectors (L1)
15=15 cm
30=30 cm
1K=100 cm
min length=13 cm

Earth PIN Location:
1=6/12 - earth on 6H/12H
2=12/1 earth on 12H
6=6/1 1 earth on 6H

Internal Circuit
see Wiring Configuration

Type of Gasket and Screw:
1 = NBR Profile Gasket + Fixing Screw M3x25mm
2 = NBR Flat Gasket + Fixing Screw M3x25mm
3 = Silicone Profile Gasket + Fixing Screw M3x25mm
4 = Silicone Flat Gasket + Fixing Screw M3x25mm
P = NBR Integrated Gasket + Fixing Screw with Washer M3x27mm Assembled on Connector
R = NBR Integrated Gasket + Fixing Screw with Washer M3x27mm NOT Assembled on Connector
T = NBR Profile Gasket + Fixing Screw with Washer M3x27mm

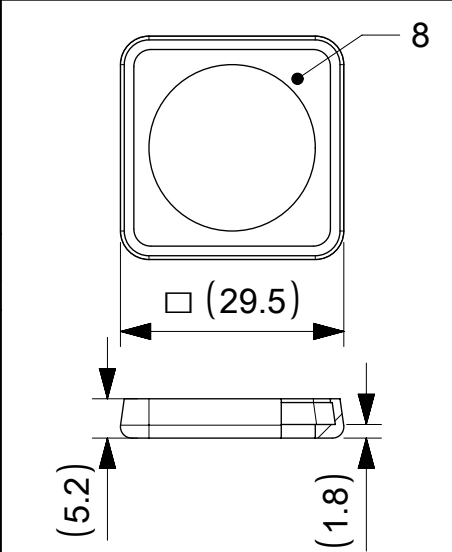
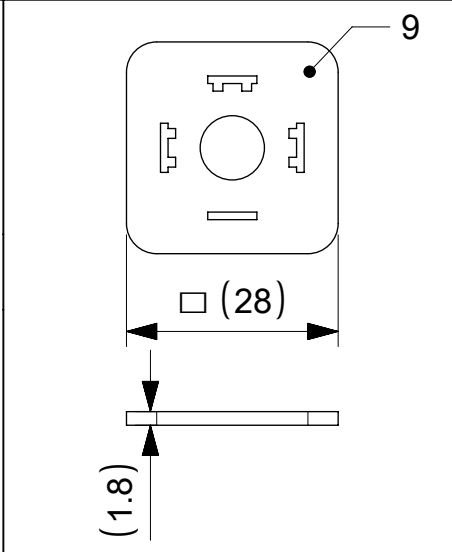
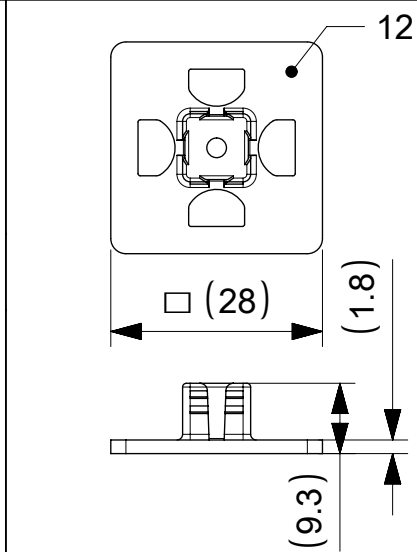
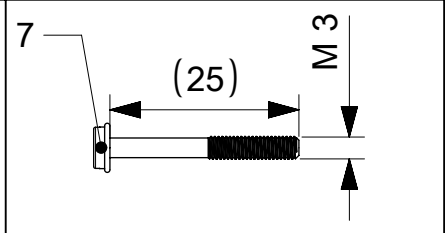
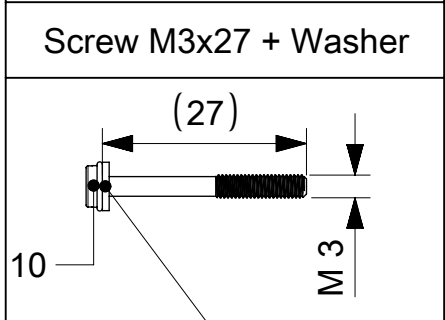
Voltage and LED color

1= 12V
2= 24V
3= 48V
4= 115V
5= 230V
RED LED

A= 12V
B= 24V
C= 48V
D= 115V
E= 230V
GREEN LED

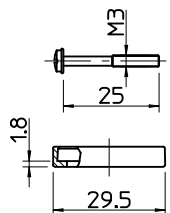
G= 12V
H= 24V
K= 48V
L= 115V
M= 230V
YELLOW LED

Type of Screws and Gaskets

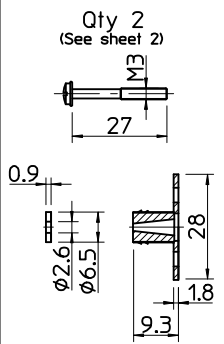
Profiled Gasket	Flat Gasket	Integrated Gasket	Screw M3x25
			
			
DOCUMENT STATUS	P1	RELEASE DATE	2020/09/04 13:21:27

FUNCTIONAL SYMBOLS FA = 0 FE = 0 FE = 0 DIVISIONAL SYMBOLS	THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX ELECTRONIC TECHNOLOGIES, LLC AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION											
	DIMENSION UNITS		SCALE		CURRENT REV DESC:			molex				
	mm		1:1									
	GENERAL TOLERANCES (UNLESS SPECIFIED)							STANDARD E653 DIN FORM A				
	ANGULAR TOL ± 1.0 °											
	4 PLACES ±		EC NO: 642619 DRWN: SSM 2020/07/31 CHK'D: RSILLER 2020/09/04 APPR: RSILLER 2020/09/04			PRODUCT CUSTOMER DRAWING						
	3 PLACES ±											
	2 PLACES ± 0.05		INITIAL REVISION: DRWN: SSM 2020/07/31 APPR: RSILLER 2020/09/04			DOCUMENT NUMBER		DOC TYPE	DOC PART	REVISION		
	1 PLACE ± 0.3					1210550038		PSD	000	A		
	0 PLACES ± 0.5					THIRD ANGLE PROJECTION		MATERIAL NUMBER		CUSTOMER		SHEET NUMBER
DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS						DRAWING		SERIES		SEE SHEET 4	GENERAL MARKET	2 OF 4

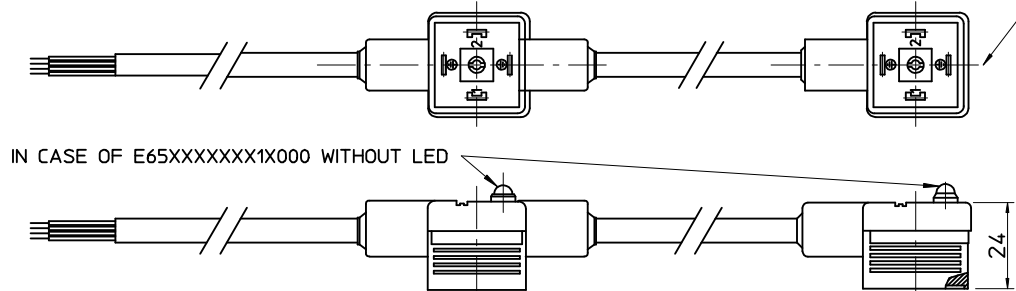
Screw M3x25
and Profile Gasket
Qty 2
(See sheet 2)



Screw M3x27
with Grommet
& Integrated Gasket
Qty 2
(See sheet 2)



CIRCUIT TAMPO PRINTOUT/WHITE
(Not for E65XXXXXXX1X000)



IN CASE OF E65XXXXXXX1X000 WITHOUT LED

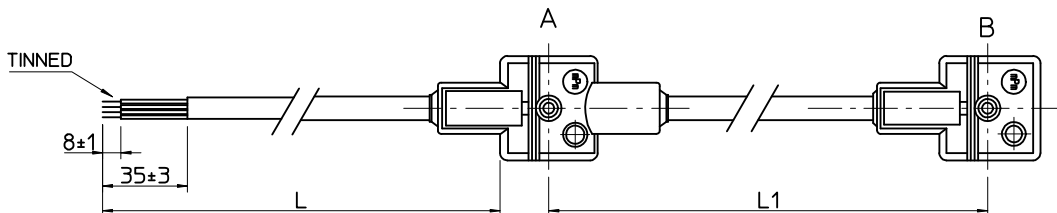
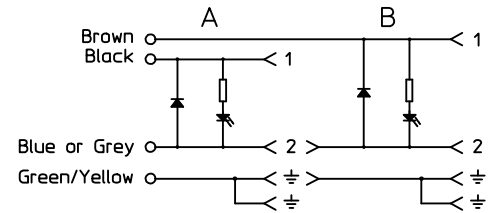


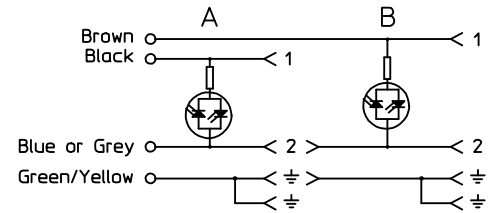
Table of lenght tolerances [mm]		
Over	Up to and including	Tolerance
0	1000	±20
1000	3000	±30
3000	5000	±40
5000	10000	±50
10000	15000	±100
15000	20000	±150
20000		±L/100

NOTE: Ground on schematics does not apply to E652XXXXXXX1XXXX

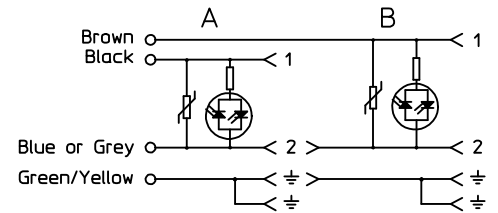
ELECTRICAL DIAGRAM
E653XXXXXXX1XC3X



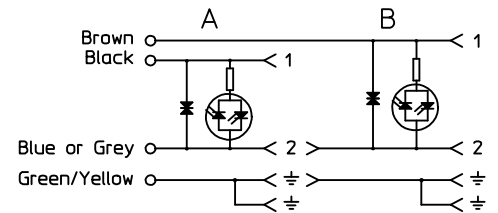
ELECTRICAL DIAGRAM
E653XXXXXXX1XA1X



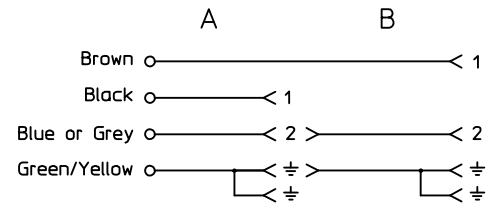
ELECTRICAL DIAGRAM
E653XXXXXXX1XC4X



ELECTRICAL DIAGRAM
E653XXXXXXX1XS0X



ELECTRICAL DIAGRAM
E653XXXXXXX1X000



DRAWING UPDATE	
EC NO: IPG2013-1505	2013/03/28
DRWN: JMARSZALEK	2013/03/28
CHKD: CHYKO	2013/04/02
APPR: MIWASIECZKO	2013/04/02
REV	DESCRIPTION
B	

QUALITY SYMBOLS	
▽=0	
▽=0	
GENERAL TOLERANCES (UNLESS SPECIFIED)	
	mm
4 PLACES	± ---
3 PLACES	± ---
2 PLACES	± ---
1 PLACE	± ---
0 PLACE	± ---
ANGULAR ± --- °	
DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS	

DIMENSION STYLE	
MM ONLY	
DRAWN BY	DATE
JMARSZALEK	2013/01/16
CHECKED BY	DATE
MSZWAJKOWSKI	2013/01/16
APPROVED BY	DATE
MIWASIECZKO	2013/02/12
MATERIAL NO.	
SEE SHEET 2&3	

SCALE	DESIGN UNITS	FIRST ANGLE PROJECTION
	METRIC	
TITLE		
E65XXXXXXX1XXXX DUAL DIN FORM A		
DOCUMENT NO.		
SD-121055-001		
SHEET NO.		
1 OF 4		

molex

	10	9	8	7	6	5	4	3	2	1											
F	E	6	5	X	X	X	X	X	X	1	X	X	X	X	F						
E	E - Packing without bags W - Single packing Q - Quick packing						CABLE LENGHT IN METERS (L) A=1 B=1,5 C=2 D=2,5 E=3 F=3,5 G=4 H=4,5 L=5 M=5,5 N=6 P=6,5 Q=7 R=7,5 S=8 T=8,5 U=9 K=10						E								
D	NUMBER OF WIRES: 2=2 POLES 3=2 POLES+GROUND												D								
C	CABLE TYPE SEE TABLE 1												C								
B	CABLE CROSS SECTION AREA SEE TABLE 2												B								
A	HEAD COLOUR: G=GREY N=BLACK T=TRANSPARENT A=CSA-UL BLACK B=CSA-UL GREY												A								
	CABLE LENGHT IN CM BETWIN 2 MOULDINGS (L1) Eg.:050=50 CM, 300=300 CM, 10K=1000 CM																				
	EARTH PIN LOCATION: 1=DOUBLE EARTH ON 6H AND 12H,																				
	TYPE OF GASKET AND SCREW: 1=NBR PROFILE GASKET + FIXING SCREWS (M3x25 mm). 2=NBR FLAT GASKET + FIXING SCREW (M3x25 mm). 3=SILICONE PROFILE GASKET + FIXING SCREW (M3x25 mm). 4=SILICON FLAT GASKET + FIXING SCREW (M3x25 mm). P=INTEGRATED GASKET ASSEMBLED + FIXING SCREW WITH GROMMET ASSEMBLED (M3x27 mm). R=INTAGRATED GASKET + FIXING SCREW + GROMMET (M3x27 mm). T=PROFILE GASKET + FIXING SCREW + GROMMET (M3x27 mm).																				
	INTERNAL CIRCUIT WIRING CONFIGURATION																				
	VOLTAGE AND LED COLOUR: 1= 12V 2= 24V 3= 48V 4= 115V 5= 230V			A= 12V B= 24V C= 48V D= 115V E= 230V			G= 12V H= 24V K= 48V L= 115V M= 230V			RED LED GREEN LED YELLOW LED											
	DRAWING UPDATE EC NO: IPG2013-1505 DRWN: JMARSZALEK 2013/03/28 CHKD: APPR: MIWASIECZKO 2013/04/02			QUALITY SYMBOLS =0 =0			GENERAL TOLERANCES (UNLESS SPECIFIED) mm INCH 4 PLACES ± --- ± --- 3 PLACES ± --- ± --- 2 PLACES ± --- ± --- 1 PLACE ± --- ± --- 0 PLACE ± --- ± --- ANGULAR ± --- ° DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS			DIMENSION STYLE MM ONLY DRAWN BY DATE JMARSZALEK 2013/01/16 CHECKED BY DATE MSZWAJKOWSKI 2013/01/16 APPROVED BY DATE MIWASIECZKO 2013/02/12 MATERIAL NO.			SCALE 1:1 DESIGN UNITS METRIC FIRST ANGLE PROJECTION			TITLE E65XXXXXXXX1XXXX DUAL DIN FORM A			DOCUMENT NO. SD-121055-001 SHEET NO. 2 OF 4		
	B			REV			SEE SHEET 2&3 SIZE A3			THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION											
	ib_frame_A3_P_AM_F Rev E1 2012/01/25																				

F

TABLE 2 - CABLES

Mollex PN	mPm	Code	Wires	Cross Section	Material	Color	Diameter Ø	DIN A-B	DIN C
1210180080	I	0	3	1 mm2	PVC CEI 2022 II O.R.	Grey RAL7035	6,4±0,2 mm	OK.	-
1210180467	A	2	2	20 AWG	PVC CSA/UL 2661	Black	5,4±0,2 mm	OK.	OK.
1210180128	A	2	3	20 AWG	PVC CSA/UL 2661	Black	5,6±0,2 mm	OK.	OK.
1210180394	A	2	4	20 AWG	PVC CSA/UL 2661	Black	6,2±0,25 mm	OK.	OK.
-	A	2	5	20 AWG	PVC CSA/UL 2661	Black	7±0,2 mm	OK.	-
1210180297	B	2	2	20 AWG	PUR CSA/UL 20668	Black	5,6±0,2 mm	OK.	OK.
1210180126	B	2	3	20 AWG	PUR CSA/UL 20668	Black	5,6±0,2 mm	OK.	OK.
1210180387	B	2	4	20 AWG	PUR CSA/UL 20668	Black	6,2±0,2 mm	OK.	OK.
-	B	2	5	20 AWG	PUR CSA/UL 20668	Black	7±0,2 mm	OK.	-
1210180122	D	2	3	0,5 mm2	PVC TI2 CEI 20-20	Grey	5,5±0,2 mm	OK.	OK.
-	F	2	3	0,5 mm2	CNOMO	Grey RAL7000	5,5±0,2 mm	OK.	OK.
1210180047	I	2	2	0,5 mm2	PVC CEI 2022 II O.R.	Grey RAL7035	5,5±0,3/-0 mm	OK.	OK.
1210180284	I	2	3	0,5 mm2	PVC CEI 2022 II O.R.	Grey RAL7035	5,6±0,3/-0 mm	OK.	OK.
1210180146	I	2	4	0,5 mm2	PVC CEI 2022 II O.R.	Grey RAL7035	6,5±0,2 mm	OK.	OK.
1210180177	I	2	5	0,5 mm2	PVC CEI 2022 II O.R.	Grey RAL7035	7±0,2 mm	OK.	-
1210180022	N	2	2	0,5 mm2	PVCH03	Black	5,2±0,2 mm	OK.	OK.
1202092753	N	2	3	0,5 mm2	PVCH03	Black	5,5±0,2 mm	OK.	OK.
1210180153	N	2	4	0,5 mm2	PVCH03	Black	6,9 mm max	OK.	OK.
1210180046	P	2	2	0,5 mm2	PUR - BLEND	Black	5,5±0,2 mm	OK.	OK.
1202092439	P	2	3	0,5 mm2	PUR - BLEND	Black	5,5 +0,3/-0 mm	OK.	OK.
1210180302	P	2	4	0,5 mm2	PUR - BLEND	Black	6,5±0,2 mm	OK.	OK.
1202092215	P	2	5	0,5 mm2	PUR - BLEND	Black	7±0,3/-0,1 mm	OK.	OK.
1210180409	A	3	2	18 AWG	PVC CSA/UL 2661	Black	6,5±0,25 mm	OK.	-
1210180129	A	3	3	18 AWG	PVC CSA/UL 2661	Black	6,5±0,25 mm	OK.	-
1210180159	A	3	4	18 AWG	PVC CSA/UL 2661	Black	7±0,3 mm	OK.	-
1210180464	A	3	5	18 AWG	PVC CSA/UL 2661	Black	7,8±0,25 mm	OK.	-
1210180351	B	3	2	18 AWG	PUR CSA/UL 20668	Black	6,8±0,2 mm	OK.	-
1210180127	B	3	3	18 AWG	PUR CSA/UL 20668	Black	6,5±0,2 mm	OK.	-
1210180160	B	3	4	18 AWG	PUR CSA/UL 20668	Black	7±0,2 mm	OK.	-
1210180463	B	3	5	18 AWG	PUR CSA/UL 20668	Black	7,8±0,2 mm	OK.	-
1210180073	D	3	3	0,75 mm2	PVC TI2 CEI 20-20	Grey	6,5±0,2 mm	OK.	OK.
1210180145	D	3	4	0,75 mm2	PVC TI2 CEI 20-20	Grey	7,1±0,2 mm	OK.	-
1202098206	I	3	2	0,75 mm2	PVC CEI 2022 II O.R.	Grey RAL7001	5,5±0,2 mm	OK.	-
1210180120	I	3	3	0,75 mm2	PVC CEI 2022 II O.R.	Grey RAL7035	6±0,2 mm	OK.	-
1210180143	I	3	4	0,75 mm2	PVC CEI 2022 II O.R.	Grey RAL7035	7±0,2 mm	OK.	-
1210180032	N	3	2	0,75 mm2	PVCH05	Black	6,2±0,2 mm	OK.	-
1210180069	N	3	3	0,75 mm2	PVCH05	Black	6,5±0,2 mm	OK.	-
1210180144	N	3	4	0,75 mm2	PVCH05	Black	7,1±0,2 mm	OK.	-
1210180174	N	3	5	0,75 mm2	PVCH05	Black	8,0±0,2-0 mm	OK.	-
1202094190	P	3	2	0,75 mm2	PUR - BLEND	Black	6,5±0,2 mm	OK.	-

E

D

C

B

A

TABLE 2 - CABLES

Mollex PN	mPm	Code	Wires	Cross Section	Material	Color	Diameter Ø	DIN A-B	DIN C
1210180071	P	3	3	0,75 mm2	PUR - BLEND	Black	6,5±0,2 mm	OK.	-
1210180152	P	3	4	0,75 mm2	PUR - BLEND	Black	7±0,2 mm	OK.	-
1210180384	R	3	3	0,75 mm2	TPR HAL. FREE	Black	6,5±0,2 mm	OK.	-
1210180094	T	3	3	0,75 mm2	PUR CSA/UL	Yellow	6,5±0,2 mm	OK.	-
1210180309	Y	3	3	0,75 mm2	SIL/0300	Red	6,5±0,2 mm	OK.	-
1210180081	F	4	3	1 mm2	CNOMO	Grey RAL7000	7,1±0,2/-0 mm	OK.	-
-	F	4	4	1 mm2	CNOMO	Grey RAL7000	7,1±0,2/-0 mm	OK.	-
1210180042	I	4	2	1 mm2	PVC CEI 2022 II O.R.	Grey RAL7035	7,1±0,2/-0 mm	OK.	-
1210180079	I	4	3	1 mm2	PVC CEI 2022 II O.R.	Grey RAL7035	7,1±0,2/-0 mm	OK.	-
1210180038	N	4	2	1 mm2	PVCH05	Black	6,5±0,2 mm	OK.	-
1210180082	N	4	3	1 mm2	PVCH05	Black	6,9±0,2 mm	OK.	-
1210180117	R	4	3	1 mm2	TPR HAL. FREE	Black	7,1±0,2 mm	OK.	-
1210180085	N	5	3	1,5 mm2	PVCH05	Black	8,3±0,2/-0 mm	OK.	-
1210180313	I	6	2	0,35 mm2	PVC CEI 2022 II O.R.	Grey RAL7035	4,8±0,2 mm	OK.	-
-	A	7	3	20 AWG	PVC CSA/UL 2661	Yellow	5,6±0,2 mm	OK.	OK.
1210180149	I	9	4	0,75 mm2	PVC CEI 2022 II O.R.	Grey RAL7035	7,3±0,2 mm	OK.	-

F

E

D

C

B

A

TABLE 1 - CABLES TYPE

Code	Cable types	Features	Stranding
N	PVC	Application general purpose cable which has good resistance to water, but usually poor oil resistance.	0,5 mm2 = 15 x 0,20 0,75 mm2 = 21 x 0,20 1 mm2 = 28 x 0,20
I	CEI	Approved to IEC 332-2A, flame retardant and self extinguishing. Limited resistant to mineral oils.	0,5 mm2 = 28 x 0,15 0,75 mm2 = 42 x 0,15 1 mm2 = 32 x 0,20
P	PUR	Offer good resistance to oil and chemicals. Can swell when constantly immersed in water.	0,5 mm2 = 28 x 0,15 0,75 mm2 = 42 x 0,15 1 mm2 = 32 x 0,20
A	PVC CSA-UL	Approved to CSA-UL 2661, application general purpose cable which has good resistance to water, but usually poor oil resistance.	20 AWG = 32 x 0,15 18 AWG = 52 x 0,15
B	PUR CSA-UL	Approved to CSA-UL 20668, very good resistance to oil and chemicals.	20 AWG = 32 x 0,15 18 AWG = 52 x 0,15

DRAWING UPDATE
EC NO: IPG2013-1505
DRWN: JMARZALEK 2013/03/28
CHKD:
APPR: MIWASIECZKO 2013/04/02

DESCRIPTION

REV

QUALITY SYMBOLS

▽=0
◻=0

GENERAL TOLERANCES (UNLESS SPECIFIED)

	mm	INCH
4 PLACES	± ---	± ---
3 PLACES	± ---	± ---
2 PLACES	± ---	± ---
1 PLACE	± ---	± ---
0 PLACE	± ---	± ---

ANGULAR ± --- °

DRAFT WHERE APPLICABLE MUST REMAIN WITHIN DIMENSIONS

DIMENSION STYLE
MM ONLY

DRAWN BY JMARZALEK	DATE 2013/01/16
CHECKED BY MSZWAJKOWSKI	DATE 2013/01/16
APPROVED BY MIWASIECZKO	DATE 2013/02/12

MATERIAL NO.

SEE SHEET 2&3

SIZE
A3

SCALE
1:1

DESIGN UNITS
METRIC

FIRST ANGLE PROJECTION

TITLE
E65XXXXXXXX1XXXX
DUAL DIN FORM A

molex

DOCUMENT NO.
SD-121055-001

SHEET NO.
3 OF 4

THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION

10

9

8

7

6

5

4

3

2

1

PART LIST

[illegible]

DRAWING UPDATE EC NO: IPG2013-1505 DRAWN: JMARSZALEK 2013/03/28 CHK'D: APPR: MIWASIECZKO 2013/04/02	DESCRIPTION	QUALITY SYMBOLS ▽=0 ◻=0	GENERAL TOLERANCES (UNLESS SPECIFIED)		DIMENSION STYLE MM ONLY		SCALE 1:1	DESIGN UNITS METRIC	FIRST ANGLE PROJECTION	
				mm	INCH	DRAWN BY JMARSZALEK	DATE 2013/01/16	TITLE E65XXXXXXXX1XXXX DUAL DIN FORM A		
			4 PLACES	± ---	± ---	CHECKED BY	DATE			
			3 PLACES	± ---	± ---	MSZWAJKOWSKI	2013/01/16	molex	DOCUMENT NO. SD-121055-001	SHEET NO. 4 OF 4
			2 PLACES	± ---	± ---	APPROVED BY	DATE			
REV			1 PLACE	± ---	± ---	MIWASIECZKO	2013/02/12			
			0 PLACE	± ---	± ---	MATERIAL NO.				
			ANGULAR ± --- °		SEE SHEET 2&3					
DRAFT WHERE APPLICABLE			MUST REMAIN WITHIN DIMENSIONS		THIS DRAWING CONTAINS INFORMATION THAT IS PROPRIETARY TO MOLEX INCORPORATED AND SHOULD NOT BE USED WITHOUT WRITTEN PERMISSION					